

WHAT IS CLAIMED IS:

1. A method of operating a variable reluctance machine as a generator, the machine having at least one phase winding, the method comprising:

creating a bias flux linking the at least one phase winding; and

limiting the phase voltage to a magnitude below that otherwise induced in the phase winding by the bias flux.
2. A method as claimed in claim 1 further including restricting the flow of current in the at least one phase winding to one direction.
3. A method as claimed in claim 2 further including restricting the flow of current by at least one diode which also serves to limit the phase voltage.
4. A method as claimed in claim 3 in which the diode is part of a full-wave rectifier circuit.
5. A method as claimed in claim 1 further including causing the phase current to flow through a resistor.
6. A method as claimed in claim 1 further including controlling an electrical output of the machine by controlling the bias flux.

7. A method as claimed in claim 1 further including creating the bias flux linking the at least one phase winding with a bias coil or coils.
8. A method as claimed in claim 7 in which the machine is polyphase and the bias coil(s) is/are arranged to couple with a proportion of the phase windings of the machine.
9. A method as claimed in claim 7 in which the bias flux is produced by a constant current in the or each bias coil.
10. A method as claimed in claim 7 in which the bias flux is produced by an alternating current in the or each bias coil.
11. A method as claimed in claim 1 wherein the machine is connected to a power converter circuit.
12. A method as claimed in claim 11 in which the power converter circuit is free of active switches.
13. A method as claimed in claim 11 in which the power converter circuit includes active switches which are kept open while the variable reluctance machine is operated as a generator.
14. A method as claimed in claim 1 including controlling output power of the machine by controlling the speed of the machine.

15. A method as claimed in claim 1 including controlling output power of the machine by adjusting the magnitude to which the phase voltage is limited.
16. A variable reluctance machine having a first part with at least one phase winding and a second part which is arranged to move relative to the first part to generate electrical power; means for creating a bias flux linking the at least one phase winding; and means for limiting the magnitude of the phase voltage below that otherwise induced in the at least one phase winding by the bias flux.
17. A machine as claimed in claim 16 including means for restricting the flow of current in the at least one phase winding to one direction.
18. A machine as claimed in claim 17 in which the means for restricting and the means for limiting collectively comprise at least one diode.
19. A machine as claimed in claim 18 in which the at least one diode is serially connected with the at least one phase winding.
20. A machine as claimed in claim 19 in which the at least one diode is part of a full-wave rectifier circuit.

21. A machine as claimed in claim 16 in which the means for creating a bias flux comprises at least one bias coil.
22. A machine as claimed in claim 21 in which the machine is polyphase and the bias coil is arranged to couple with a proportion of the phases.
23. A machine as claimed in claim 21 including a constant current source connected to excite the at least one bias coil.
24. A machine as claimed in claim 21 including an alternating current source connected to the at least one bias coil.
25. A machine as claimed in claim 16 connected to a power converter circuit.
26. A machine as claimed in claim 25 in which the machine is a generator and in which the power converter is free of active switches.
27. A machine as claimed in claim 16 in which the machine is a generator and includes a resistive load connected across the or each phase winding.